Cancer is an emerging public health problem in Africa, and cervical cancer, one of the most diagnosed cancers, is the leading cause of cancer death in African women. Epidemiological studies have shown that the association of human papillomavirus (HPV) with cervical cancer is very strong. We use a mathematical model to assess the epidemiological consequences of human papillomavirus on cervical cancer prevalence in Africa. Furthermore, we use the next generation method to compute the basic reproduction number, $R_0$, of the mathematical model. We obtain that $R_0<1$ implies disease extinction whereas $R_0>1$ implies disease persistence. (Received September 17, 2013)